

WHAT IS CLAIMED IS:

1. A long travel, constant contact side bearing for use in a railway car truck, comprising:

a base having opposing side walls, a front wall, and a rear wall;

a cup-shaped cap having downwardly extending side walls, a front wall and a rear wall that surround the respective side walls, front wall and rear wall of the base in a telescoping fashion with a predetermined spatial gap therebetween; and

at least one coil spring provided within the base extending between the base and the cap, the at least one coil spring having a combined load rating of less than about 6,000 lb/in. and a travel length from a loaded static height to a fully compressed solid height of at least 5/8",

wherein the walls of the cap and base are configured so as to retain an overlap at the loaded static height state and allow at least 5/8" of spring travel length before parts of the cap and base abut each other and prevent further spring travel.

2. The long travel side bearing of claim 1, wherein the spatial gap, at least in the longitudinal direction, is precisely controlled to be between 0.006" to 0.046" to achieve improved control and hunting characteristics.

3. The long travel side bearing of claim 1, wherein the top surface of the cap includes a substantially flat surface that mates with each of the front, rear and side walls of the cap through coped surfaces that reduce gouging on railway car body contact surfaces during use.

4. The long travel side bearing of claim 3, wherein the top surface has a flatness to within about 0.010" concave and 0.030" convex.

5. The long travel side bearing of claim 1, wherein the cap and base are formed from Grade E steel.

6. The long travel side bearing of claim 1, wherein at least select outside surfaces of the base side walls, front wall and/or rear wall have hardened wear surfaces.

7. The long travel side bearing of claim 1, wherein corresponding side walls of the base and cap include respective vertically-oriented openings and notches to form a side viewing window that allows visual inspection of the at least one spring.

8. The long travel side bearing of claim 1, wherein the side walls of the base and the side walls of the cap are substantially arcuate in profile.

9. The long travel side bearing of claim 1, wherein an exterior of the base and an interior of the cap have complementary keying features located substantially on a diagonal to the longitudinal direction of the side bearing to prevent mismatch or improper orientation of components.

10. The long travel side bearing of claim 9, wherein keying features are provided on two opposite sides to prevent improper orientation of the cap relative to the base.

11. The long travel side bearing of claim 9, wherein a first side bearing assembly for a first railway car application includes a first keying feature with a predetermined configuration, and a second side bearing assembly for a second, different railway car application includes a second keying feature different from the first keying feature, such that components from the first side bearing assembly and the second side bearing assembly cannot be improperly mismatched.

12. The long travel side bearing of claim 11, wherein the combined spring load rate of the first side bearing assembly differs from the combined spring load rate of the second side bearing assembly.

13. The long travel side bearing of claim 12, further comprising a spring lockout feature on at least one of the cap and base to prevent use of an improper spring with the first and second side bearing assemblies.

14. The long travel side bearing of claim 13, wherein available springs have different diameters, and the spring lockout feature prevents acceptance of an improperly sized spring.

15. The long travel side bearing of claim 1, wherein two or more springs are provided within the base, each having a different diameter, the two or more springs each having a spring load rating sufficiently low that the combined spring load rating is between about 4,000 to 6,000 lb/in.

16. The long travel side bearing according to claim 15, wherein the combined spring load rating is about 4500 lb/in.

17. A long travel, constant contact side bearing for use in a railway car truck, comprising:

a base having opposing side walls, a front wall, and a rear wall;

a cup-shaped cap having downwardly extending side walls, a front wall and a rear wall that surround the respective side walls, front wall and rear wall of the base in a telescoping fashion with a predetermined spatial gap therebetween precisely controlled to be

between about 0.006" to 0.046" to improve control and hunting characteristics of the railway car truck; and

at least one resilient urging member provided within the base extending between the base and the cap, the at least one urging member having a combined load rating between about 4,000 to 6,000 lb/in. and a travel length from a loaded static height to a fully compressed solid height of at least 5/8",

wherein the walls of the cap and base are configured so as to retain an overlap at the loaded static height state and allow at least 5/8" of spring travel length before parts of the cap and base abut each other and prevent further travel.

18. The long travel side bearing of claim 17, wherein the resilient urging member includes at least one coil spring.

19. The long travel side bearing of claim 18, wherein the top surface of the cap includes a substantially flat surface that mates with each of the front, rear and side walls of the cap through coped surfaces that reduce gouging on railway car body contact surfaces during use.

20. The long travel side bearing of claim 17, wherein an exterior of the base and an interior of the cap have complementary keying features located substantially on a diagonal to the fore/aft direction of the side bearing to prevent mismatch or improper orientation of components.

21. The long travel side bearing of claim 17, further comprising a spring lockout feature on at least one of the cap and base to prevent use of an improper resilient urging member.

22. A long travel, constant contact side bearing for use in a railway car truck, comprising:

a base having opposing side walls, a front wall, and a rear wall;

a cup-shaped cap having downwardly extending side walls, a front wall and a rear wall that surround the respective side walls, front wall and rear wall of the base in a telescoping fashion with a predetermined spatial gap therebetween precisely controlled to be between about 0.006" to 0.046" to improve control and hunting characteristics of the railway car truck; and

at least one coil spring provided within the base extending between the base and the cap, the at least one coil spring having a combined load rating between about 4,000 to 6,000 lb/in. and a travel length from a loaded static height to a fully compressed solid height of at least 5/8",

wherein the walls of the cap and base are configured so as to retain an overlap at the loaded static height state and allow at least 5/8" of spring travel length before parts of the cap and base abut each other and prevent further spring travel.

23. A long travel, constant contact side bearing for use in a railway car truck, comprising:

a base having opposing side walls, a front wall, and a rear wall;

a cup-shaped cap having downwardly extending side walls, a front wall and a rear wall that surround the respective side walls, front wall and rear wall of the base in a telescoping fashion with a predetermined spatial gap therebetween precisely controlled to be between about 0.006" to 0.046" to improve control and hunting characteristics of the railway car truck, a top surface of the cap including a substantially flat surface that mates with each of the front, rear and side walls of the cap through coped surfaces that reduce gouging on railway car body contact surfaces during use; and

at least one resilient urging member provided within the base extending between the base and the cap, the at least one urging member having a combined load rating between about 4,000 to 6,000 lb/in. and a travel length from a loaded static height to a fully compressed solid height of at least 5/8",

wherein the walls of the cap and base are configured so as to retain an overlap at the loaded static height state and allow at least 5/8" of spring travel length before parts of the cap and base abut each other and prevent further spring travel.

24. A long travel, constant contact side bearing for use in a railway car truck, comprising:

a base having opposing side walls, a front wall, and a rear wall;

a cup-shaped cap having downwardly extending side walls, a front wall and a rear wall that surround the respective side walls, front wall and rear wall of the base in a telescoping fashion with a predetermined spatial gap therebetween precisely controlled to be between about 0.006" to 0.046" to improve control and hunting characteristics of the railway car truck, the top surface of the cap including a substantially flat surface that mates with each of the front, rear and side walls of the cap through coped surfaces that reduce gouging on railway car body contact surfaces during use;

at least one coil spring provided within the base extending between the base and the cap, the at least one coil spring having a combined load rating between about 4,000 to 6,000 lb/in. and a travel length from a loaded static height to a fully compressed solid height of at least 5/8",

wherein the walls of the cap and base are configured so as to retain an overlap at the loaded static height state and allow at least 5/8" of spring travel length before parts of the cap and base abut each other and prevent further spring travel,

wherein corresponding side walls of the base and cap include respective vertically-oriented openings and notches to form a side viewing window that allows visual inspection of the at least one spring,

wherein an exterior of the base and an interior of the cap have complementary keying features located substantially on a diagonal to the longitudinal direction of the side bearing to prevent mismatch or improper orientation of components,

wherein a spring lockout feature is provided on at least one of the cap and base to prevent use of an improper spring with the first and second side bearing assemblies,

wherein the top surface of the cap includes a substantially flat surface that mates with each of the front, rear and side walls of the cap through coped surfaces that reduce gouging on railway car body contact surfaces during use,

wherein the cap and base are formed from Grade E steel, and

wherein at least select outside surfaces of the base side walls, front wall and/or rear wall have hardened wear surfaces.

25. A standardized assembly kit to configure a constant contact side bearing in one of a plurality of different long travel configurations for different applications by proper selection from among standardized components, comprising:

a plurality of different bases, each having opposing side walls, a front wall, and a rear wall;

a plurality of different cup-shaped caps, each having downwardly extending side walls, a front wall and a rear wall that surround respective side walls, front wall and rear wall of a corresponding base in a telescoping fashion with a predetermined spatial gap therebetween precisely controlled to be between about 0.006" to 0.046" to improve control and hunting characteristics of the railway car truck;

a plurality of coil springs, each having a different diameter and being positionable within one of the bases between the base and a corresponding cap, each coil spring also having a travel length from a loaded static height to a fully compressed solid height of at least 5/8",

wherein the springs can be mixed and matched in various combinations to support railway cars of different weights or types,

wherein corresponding bases and caps each include a mating keying feature allowing mating of matching components and preventing mismatch of improper base and cap combinations, the walls of mating caps and bases being configured to allow at least 5/8" of spring travel length before parts of the respective cap and base abut each other and prevent further spring travel,

wherein a spring lockout feature is provided on at least one of mating caps and bases to prevent use of an improper spring combination, and

wherein each spring combination has a combined load rating of less than 6,000 lb/in.

26. The standardized assembly kit of claim 25, wherein three different diameter coils springs are available, a first having a load rating of about 500 lb/in., a second having a load rating of about 1525 lb/in., and a third having a load rating of about 2500 lb/in., giving possible combined load ratings of about 500 lb/in., 1525 lb/in., 2025 lb/in., 2500 lb/in., 3000 lb/in., 4025 lb/in., and 4525 lb/in. when used in varying combinations.